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Pennsylvania Military College

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COLLEGE BUILDING

PENNSYLVANIA MILITARY COLLEGE

FIFTY-FOURTH SESSION

1915-1916

CHESTER

PENNSYLVANIA

Act of Incorporation

THE Act of the Pennsylvania State Legislature, incorporating the Pennsylvania Military College, approved April 8, 1862, invests the Board of Trustees with all the powers and privileges of a Military University. It authorizes the conferring of scholastic honors and degrees, enjoins the conduct of theoretical and practical military instruction, and empowers the State authorities to supply arms for infantry, artillery and cavalry drills, together with tents and other camp equipage.

A Supplement to the Act of Incorporation, approved February 21, 1868, further authorizes the Governor of Pennsylvania to grant to the President, Vice-President, and Adjutant of the College the commissions respectively of Colonel, Lieutenant Colonel, and Captain of Infantry, and requires the President of the College, at the end of each scholastic year, to report to the Governor the names of the six cadets in the Collegiate Department ranking highest in the Merit Roll.

171798

Board of Trustees

JOHN WANAMAKER, LL.D.,	Philadelphia, Pa.
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NORRIS S. BARRATT, LL.D.,	Philadelphia, Pa.
CHARLES E. HYATT, LL.D.,	Chester, Pa.

* Deceased.

Organization of Board

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HON. OLIVER B. DICKINSON, SECRETARY.

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DR. WILLIAM A. PATTON, DR. WALTON CLARK,
DR. RUKARD HURD, COL. MERRITT H. SMITH,
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Committee on Military Department

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COL. CHARLES E. HYATT.

Faculty and Instructors

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MILO C. BURT, A.M., PH.D., VICE-PRESIDENT,
Professor of Geology.

CARL A. BAEHR,
(*Graduate U. S. Military Academy.*)
Professor of Military Science and Tactics.

LEVI P. WYMAN, A.M., PH.D., SECRETARY,
Professor of Chemistry.

HERBERT J. WILD, C.E.,
(*Mem. Am. Soc. C.E.*)
Professor of Engineering.

FRANK K. HYATT, B.S.,
Professor of Mathematics.

LAWRENCE W. BURDICK, A.M., PH.D.,
Professor of Modern Languages.

EDWARD BRAUTIGAM, C.E.,
Associate Professor of Mathematics, and Instructor in Military Science and Tactics.

HAROLD C. BIRD, C.E.,
Associate Professor of Engineering.

*_____
Professor of English Language and Literature.

ATCHESON L. HENCH, A.B.,
Professor of Latin and English.

F. OTIS BRYANT, M.D.,
Instructor in Anatomy and Physiology.

FRANK R. THOMAS, JR., C.E.,
Instructor in Mathematics and Engineering Field Work.

CLIFFORD A. LORD, B.S.,
Instructor in Chemistry.

PAUL F. WENDLER,
Instructor in Gymnastics.

* To be appointed.

Officers of the Military Department

COLONEL CHARLES E. HYATT,
Commandant.

LIEUTENANT COLONEL MILO C. BURT,
Treasurer of the College.

LIEUTENANT CARL A. BAEHR,
Infantry, U. S. A.
United States Military Detail.

CAPTAIN LEVI P. WYMAN.....*Adjutant*

SAMUEL R. CROTHERS, M.D.....*Surgeon*

CAPTAIN EDWARD BRAUTIGAM,
Tactical Officer, Infantry

CAPTAIN FRANK K. HYATT.....*Instructor in Cavalry*

MR. FRANK R. THOMAS.....*Assistant in Infantry*

MR. SAMUEL W. GREEN.....*Quartermaster*

REV. PHILIP H. MOWRY, D.D.,
REV. FRANCIS M. TAITT,
REV. WILLIAM H. SHAFFER, D.D., } .....*Chaplains*

MISS MAY DISERT.....*In Charge of Hospital*

MR. GEORGE W. ROATCH,
MR. JAMES F. FAULKNER, } .....*Special Aids*

Cadet Aids are officially announced in the July supplement to the annual catalogue.

Calendar

1915

September 21, Tuesday, Entrance Examinations begin, 10 A. M.
September 22, Wednesday, Fall Term begins, 6 P. M.
October 5, Tuesday, Official Conferring of Under-Graduate Honors and Prizes.
November 12, Friday, Orations, College Prize Contest, Second Class.
December 3, Friday, Technical Essays, First Class.
December 13, Monday, Fall Term Examinations begin.
December 17, Friday, Fall Term ends.

WINTER VACATION.

1916

January 4, Tuesday, Winter Term begins, 6 P. M.
February 3, Thursday, Semi-Annual Meeting of Board of Trustees.
February 4, Friday, Essays, Second Class.
March 3, Friday, Orations, First Class.
March 17, Friday, Indoor Athletic Exhibition and Prize Contest.
March 20, Monday, Winter Term Examinations begin.
March 24, Friday, Winter Term ends.

SPRING VACATION.

April 4, Tuesday, Spring Term begins, 6 P. M.
May 5, Friday, Declamations, Pollock Prize Contest, Third Class.
May 24, Wednesday, Final Competitive Drill for Bergfels Cavalry Medal.
June 15, Thursday, Spring Term Examinations begin.
June 18, Sunday, Baccalaureate Sermon.
June 20, Tuesday, Alumni Day. Rifle and Revolver Contests, Athletic Events, Military Exercises, Conferring Military Medals, President's Reception.
June 21, Wednesday, Annual Meeting of Board of Trustees. *Fifty-fourth Annual Commencement.*

Thos Hyatt

Outline of the History of Pennsylvania Military College

IN 1821 John Bullock opened a boarding school for boys at Wilmington, Delaware. This institution soon acquired a wide and favorable reputation, and continued to flourish under his management for twenty-six years. At his death, in 1847, Samuel Alsop secured control of the School, and conducted it successfully until 1853, when, desiring to locate elsewhere, he transferred, by sale, the equipment and good will to Theodore Hyatt, then in charge of the Parochial School of the First Presbyterian Church of Wilmington.

In the Fall of 1858, military instruction was introduced, and speedily took on so definite a form, that, on April 19, 1859, the Governor of Delaware, Hon. William Burton, ordered the delivery to the institution of "certain public arms," which equipment consisted of an outfit of rifles and two six-pounder field pieces. Six days later, April 25, Principal Hyatt was appointed aide-de-camp, with rank of colonel, on the staff of the Governor. This radical change in the constitution of the School opened a new era in its history, and, to make the evolution complete, a characteristic name was adopted, Delaware Military Academy.

At the opening of the Civil War, increased facilities for the conduct of the Academy became necessary, and, accordingly, an extensive and valuable school property at West Chester, Pennsylvania, was leased. A charter was secured from the Pennsylvania Legislature, approved April 8, 1862 by Governor Andrew G. Curtin. The following June, the Board of Trustees organized under the corporate title of Pennsylvania Military Academy, and elected Colonel Hyatt president of the institution. During the summer vacation, the school equipment was transferred to the new quarters, and the first session in Pennsylvania opened September 4, 1862.

In December, 1865, another change in location was made

necessary by the final disposition of the West Chester property, in settlement of the Bolmar estate, of which it was a part. Chester, eighteen miles distant, offered superior local advantages. Suitable quarters were immediately available (the Crozer Normal School building), and within a month the institution, fully organized, was at work in the city destined to be its permanent home.

During the year 1867, a number of citizens of Chester, incorporated as the Military Academy Stock Company, purchased a fine tract of land on the northeastern border of the city, and proceeded to erect buildings for the use of the School, which was still occupying, under lease, the Crozer property. In June of the same year the cornerstone of the main edifice was laid with appropriate ceremonies, and on September 3, 1868, the Academy opened the doors of its new home to the incoming corps of students.

On February 16, 1882, a fire completely destroyed the principal building. The interruption of scholastic work was, however, but brief, for within less than a month the entire body of students reassembled at Ridley Park, a borough two miles north of Chester, and took up quarters in the Ridley Park Hotel, which had been rented and furnished for the temporary use of the School, where the appointed work of the year, scholastic and military, was completed with the loss of only one week from the published calendar of the session. In September, 1882, the new main building, occupying the site of that destroyed in February, was opened, with increased accommodations, and far greater facilities for the conduct of the various departments. Changes, improvements and additions have marked the passing of recent years. The present equipment of buildings offers excellent opportunity for the collegiate education and military instruction of a large corps of cadets.

In order that the name of the institution might properly indicate that the Legislature had invested the Board of Trustees with collegiate powers and privileges, the Court of Common Pleas of Delaware County, Pennsylvania, on December 12, 1892, changed the corporate title to Pennsylvania Military College.

The College
Its Life and Activities

LOCATION

PENNSYLVANIA MILITARY COLLEGE is located at Chester, on the lines of the Philadelphia, Baltimore and Washington Railroad, and of the Baltimore and Ohio Railroad, about a half-hour's ride from Philadelphia. The buildings, occupying an eminence that overlooks the Delaware River and the adjacent country, consist of the College Building, Laboratory, Memorial Observatory, Hospital Building, Drill Hall and Gymnasium, Riding Hall and Stables. The grounds, including Cadet Limits, are upwards of twenty acres in extent; the surroundings are healthful, and the appointments especially adapted to the needs of a military institution.

BUILDINGS

The College Building, of stone, is two hundred and seventeen feet long, fifty feet deep, and four stories high. It accommodates about one hundred and fifty cadets, together with the resident members of the Faculty and Military Staff. It has wide, airy corridors, and, for all cadets, bright, well-ventilated rooms, looking out upon miles of beautiful landscape. The private rooms, each intended for the occupancy of two cadets, are located on the second and third floors; on the fourth floor are the Drafting Room, the Engineering, the Mathematical and other recitation rooms.

The building is lighted by electricity, and heated by the indirect method of steam heating, which supplies pure warm air to every apartment. In the General Lavatory are wash-stands, shower-baths, and eighteen full-sized bathtubs; all furnished with hot and cold water.

Fire-walls and heavy fire-doors divide the building into four sections, each with its own stairways, while exterior fire-escapes provide additional means of safety.

The Harris Memorial Scientific Library. A valuable collection of scientific works is located in the Assembly Hall of the College Building. The Library was established by Mr. and Mrs. Jonathan M. Harris, in memory of their son, the late Cadet Fried Harris, Class of 1905, who died April 17, 1903.

The Chemical Laboratory is situated about sixty feet distant from the College Building, and connected with it by an iron bridgeway. It affords excellent facilities for the conduct of the Chemical and Physical Departments.

The Theodore Hyatt Memorial Observatory is a gray stone building of appropriate architecture. Overlooking the Parade from the east, the Observatory occupies the most elevated site within college limits.

The equipment, contributed "in memoriam" jointly by the Alumni Association, ex-cadets, and friends of the honored Founder of the College, furnishes opportunity for extended work in practical Astronomy.

The Engineering Laboratory, an apartment that adjoins the Transit Room, is furnished with the machinery and electrical power necessary to a practical course in the testing of metals and cements.

The Gymnasium, sixty feet long, thirty wide, and twenty-five high, is supplied with apparatus for a general course in physical culture.

The Drill Hall, a building one hundred and thirty feet long, forty wide, and twenty high, gives opportunity for indoor military and athletic exercises. The Cannon House is connected with the Drill Hall and is used for the storage of the field pieces and machine guns.

The Riding Hall erected for the conduct of the cavalry drill, is one hundred and eighty feet long, fifty wide, and eighteen high, with elevated seats at the east end for

more than two hundred spectators. The Hall is equipped with the appliances used in equestrian and saber exercises.

The Hospital Building is a neat brick structure erected for the Medical Department, and located off Cadet Limits, but within convenient reach of Quarters.

Cadet Limits comprise a Parade, nine acres in extent, and a large area laid out in walks and planted with deciduous and evergreen trees. The Parade, a plain crowning the ridge upon which the buildings stand, is admirably adapted to the needs of the Military Department, while it offers rare advantages for field athletics.

SCHOLASTIC WORK

In the work of the institution, the training of young men, all sides of the student's character are given careful consideration. Even a casual reading of the Courses of Study will make plain that as lines of effort their direct purpose is to equip for place and service in the world.

The Collegiate Department offers three courses of study: the Civil Engineering, the Chemical, and the Academic. Each course extends through four years, and in it a cadet may graduate and take a degree.

The Preparatory Courses are intended primarily to fit students for the higher work of the institution. The Scientific Preparatory Course, however, is not conducted exclusively to that end: the range and character of the instruction adapt it admirably to the needs of the cadet that desires a good knowledge of the elementary English branches, but does not purpose to take up collegiate work. The students in these courses are members of the general organization of the College, and are in all respects, an integral part of the cadet corps.

Special courses of study are not allowed, but every assistance is given the student that has the ability and the purpose to make more rapid progress, or to do more work than is required by the curriculum. If the cadet evidence suffi-

cient knowledge of any branch about to be pursued by his class, he may select a substitute for it from among the studies appointed for the class next in advance, provided such study is scheduled for instruction at the time; or if desirous solely to carry an "extra," such as an additional language, he may make such selection, conditioned upon its not interfering with his regular class-work.

Classes are taught in sections, which gives opportunity for much individual attention. The hours of study are appointments as specific as the periods of recitation, while the daily routine of duty, with its regularity of movement and persistent demand for effort, furnishes a discipline of mind not inferior in value to purely scholastic attainment.

The institution reserves the right to determine during the session the text book that is to be used in the teaching of any appointed branch of study.

Previous to each vacation, there is an examination in the studies pursued during the current part of the session.

MORAL TRAINING

In moral training, the Bible is the principal text-book; and the adoption of its principles as the standard of truth and duty is earnestly recommended.

It is designed that a strong religious, but not sectarian, influence shall pervade the training and discipline. On Sunday morning, all cadets attend divine service, in the care of members of either the Faculty or the Military Staff. Sittings are held in churches of several denominations, the preference of patrons being met as fully as possible. Cadets have a Bible recitation on Sunday and attend the daily devotional exercises of the College.

The purpose of our system of discipline is to enable young men to prosecute their education under such influences as will develop a true manhood, and to imbue them with high-minded and noble sentiments—truthfulness, honor, and candor. By appealing to the moral sense, discipline is a means of elevating the character, while a cheerful compliance with regulations is secured.

MILITARY INSTRUCTION AND TRAINING

The conduct of the Military Department is under the direction of the President of the College, who, as Commandant of Cadets, is assisted by thoroughly educated military men.

The object of maintaining this department in a high state of efficiency, is twofold: to direct the character-development of the student along the most helpful lines, and to bring into active exercise all his powers, in order to the educational perfecting of the man. The military element enters largely into the general life of the College. This not only secures to the individual cadet the best physical culture—as seen in an erect form, graceful carriage and vigorous powers of body—but it also impresses upon him habits of neatness, system and punctuality; schools him in self-restraint; cultivates a manly spirit, and gives that equipoise and mastery of self which is the goal of all well directed educational effort. Furthermore, the frequent demand for quick, responsive action, for prompt and willing obedience, and for the exercise of authority under a consciousness of personal responsibility, are factors of exceptional value in the development of an efficient personality; and only the military system makes it possible for all the members of a student-body to receive such training. The world of today needs, and demands as never before, men that in their younger life have passed through a school of experience in which self-control, alertness, confidence and poise of mind and body are results as diligently sought as is attainment in study. Further still: the higher lines of undergraduate study, the college period of life, offer the richest rewards, because, at such stage of mental progress, discipline and system can and should appeal to the student, as superior elements of power in the life-problem.

The United States War Department and the State authorities furnish all equipment necessary for instruction in each arm of the service. The field of training covers infantry, cavalry, artillery, signalling and hospital corps work.

The Theoretical Course, appointed for the First and

Second Classes, is considered at length in the section on Military Science, page 36.

The Practical Course consists of drills, guard duty, inspections, target practice and castrametation. At the option of the President, there is appointed for the Spring Term a week in camp, under the direction of the U. S. Military Detail.

For administrative purposes, the corps of cadets is organized as a battalion of two companies. For purposes of drill, this organization is varied. Cadet officers are selected by the President as Commandants, with reference primarily to their fitness for the duties they will be required to perform. In general, the officers are taken from the First Class, the sergeants from the Second Class, and the corporals from both the Second and the Third Classes.

The Cavalry Drill

This Cavalry Drill is optional and open to cadets of all classes; the system of instruction is the same as that followed at the United States Military Academy. During the session, one hundred lessons, one hour each, are given in horsemanship and the School of the Soldier Mounted, for which special charge is made. The horses used in this exercise have been selected and are kept exclusively for it.

The character of the mounted drill gives it peculiar value in an educational system. Whatever advantages attend training in general athletics are met with in fullest measure in the course in horsemanship as conducted at this institution. Alertness of mind, prompt and vigorous response of body, continuous demand for self-control under varying conditions, independence of action, confidence in self, courage—these represent in part the purely educational features of the work. The physical benefits need no emphasis, for riding has always been regarded the peerless form of recreative exercise. In the riding-hall, on the field, out through the country either on road rides or engaged in military problem work, the cadet finds much to arouse to zestful endeavor, and to gratify desire for stirring, stimulating enjoyment.

REAR VIEW OF COLLEGE BUILDING

ATHLETICS

The athletic interests of the College constitute an important department of cadet life, and every member of the corps is urged to identify himself with one or more of its varied activities. This work admirably supplements the instruction and training of the Military Department, because of its constant demand for results, through personal initiative, individual and team play, and that freedom of action of mind and body that constitutes true recreative exercise.

All athletic work is under the general supervision of the College Athletic Board, composed of members of the faculty and of the corps of cadets. The cadet managers of the various teams as members of the Board conduct games with visiting teams at the College, and hold inter-class contests.

The institution recognizes by special appointments football, baseball, basketball, tennis and hockey. Coaches of superior grade train the 'Varsity teams in the leading sports. Inter-collegiate games are regularly scheduled for the respective seasons; so too, the inter-class contests in basketball and tennis.

During the Fall and Winter Terms, class-training in gymnasium work under the Instructor in Gymnastics, is conducted without extra charge, for all that desire a course in physical culture. In the latter part of the Winter Term a public exercise is held under the direction of the Athletic Board, in which prizes are awarded for *excellence,* and for *greatest improvement* in indoor athletics.

Four tennis courts, the Parade with its acres of level sward, and the riding ground of the cavalry squads offer excellent advantages for outdoor recreative exercise. Cadets interested in indoor sports and athletic training, find ample opportunity for such work in the Gymnasium and the Drill Hall, with large floor spaces (2000 square feet and 5000 square feet respectively) free of all obstruction. The Riding Hall permits full development of individual horsemanship in conjunction with regular instruction in the Mounted Drill.

MEDICAL SERVICE

The health of the corps is cared for by an experienced physician and surgeon, who visits the College professionally every day. Cases requiring treatment are by him placed under the care of a trained nurse, who is on duty at the institution at all times. The physical condition of the cadet is a matter of great importance, and commands the best possible service.

DAILY SCHEDULE OF DUTY

6.30 A. M. ..... Reveille.
7.15 A. M. ..... Breakfast.
7.45 till 8.30 A. M. ..... Recreation.
†8.30 A. M. ..... Morning Chapel Service.
†8.45 till 11.45 A. M. ..... Study and Recitation.
†11.45 A. M. till 1 P. M. ..... Recreation.
1 P. M. ..... Dinner.
1.30 till 2.15 P. M. ..... Recreation.
2.15 till 4.20 P. M. ..... Study and Recitation.
4.30 till 5.30 P. M. ..... Drill.
5.30 till 6 P. M. ..... Quiet in Quarters.
6 P. M. ..... Supper.
6.30 till 7 P. M. ..... Recreation.
7 P. M. ..... Call to Quarters.
7.10 till 9.15 P. M. ..... Study.
9.15 P. M. ..... Tattoo.
9.30 P. M. ..... Call to Quarters.
9.35 P. M. ..... Taps.

SPECIAL DAILY CALLS

8 A. M. ..... Guard Mounting.
8.15 A. M. ..... Sick Call.

About eight hours a day are assigned to study and recitation, one to drill, nine to sleep, and one and a half to meals, leaving four hours for recreation and special duties.

For Saturday and Sunday, this program is adapted to special duties and recreation.

†During the first eight weeks of the session, these calls are fifteen minutes later; and there is a Squad Drill of one-half hour, from 8 till 8.30 A. M.

Courses of Study

Collegiate Department

IN THE Collegiate Department three courses are offered: the Civil Engineering, the Chemical, and the Academic. Each course extends through four years; and a cadet that successfully completes a course is awarded a degree.

Owing to the concentration of work, the subjects in each course are required; the only elective is the choice of one of three languages. There are no special courses.

OUTLINE OF COURSE IN CIVIL ENGINEERING*

Degree: Civil Engineer

The purpose of this course is to acquaint the student with the principles and practice of Civil Engineering, and to prepare him to cope with business and engineering propositions that involve plans, materials, and men. An engineer should be a business man as well as a constructor or designer. In addition to the subjects mentioned below, the students of the First Class visit various industrial establishments and engineering operations, either completed or in process of construction, in order to impress them by personal inspection with the very practical character of the course. The Second Class also has special appointments that emphasize this valuable feature of the instruction.

Students of the higher classes are required to read the current engineering periodicals.

FOURTH CLASS

Fall Term

**M-1. Advanced Algebra, through Quadratics.
CPS-1. Rhetoric.
CPS-2. Letter Writing.
EL-1. English Classics.
L-1. French or German or Latin.
D-1. Drawing: Use of Instruments; Simple Projections; Applied Geometry.
B-1. Bible: The Gospel according to Matthew.

* For details of the various subjects of instruction, see pages 29-38.

** See pages 29-38 for details.

Winter Term

M-3. Plane Geometry.
CPS-1. Rhetoric.
CPS-3. Essay Writing.
EL-1. English Classics.
L-2. French or German or Latin.
D-2. Drawing: Orthographic Projections; Intersections and Developments.
B-1. Bible: The Gospel according to Matthew.

Spring Term

M-4. Solid Geometry.
HE-1. General History.
CPS-3. Essay Writing.
EL-1. English Classics.
L-3. French or German or Latin.
D-3. Drawing: Machine Drawings.
B-1. Bible: The Gospel according to Matthew.

THIRD CLASS

Fall Term

M-2. Advanced Algebra, completed.
S-1. Physics, begun.
EL-2. English: Studies in Shakespeare.
CPS-4. Essay Writing and Declamations.
L-4. French or German or Latin.
D-4. Drawing: Descriptive Geometry.
B-2. Bible: First and Second Samuel.

Winter Term

M-5. Plane Trigonometry.
S-1. Physics, completed.
S-2. General Chemistry, begun.
EL-3. English: Studies in the English Drama.
CPS-4. Essay Writing and Declamations.
L-5. French or German or Latin.
D-5. Drawing: Technical; Shades and Shadows; Linear Perspective.
B-2. Bible: First and Second Samuel.

Spring Term

M-6. Analytic Geometry.
S-2. General Chemistry, continued.
S-3. Chemical Laboratory Work.
EL-4. History of American Literature.
CPS-4. Essay Writing and Declamations.
CPS-5. Business English.
L-6. French or German or Latin.
B-2. Bible: First and Second Samuel.

SECOND CLASS

Fall Term

M-7. Differential Calculus.
CE-1. Surveying.
EL-5. History of English Literature.
CPS-6. Essay Writing, Public Speaking, Debating.
L-7. French or German or Latin.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Winter Term

M-8. Integral Calculus.
CE-2. Technical Mechanics.
S-4. General Chemistry, completed.
S-6. Analytical Chemistry.
CPS-6. Essay Writing, Public Speaking, Debating.
L-8. French or German or Latin.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Spring Term

CE-3. Mechanics of Materials.
CE-4. Engineering Laboratory Work.
CE-5. Topographical Surveying.
CE-6. Highway Engineering.
CE-7. Safety Engineering.
HE-2. Political Science.
L-9. French or German or Latin.
CPS-6. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

FIRST CLASS

Fall Term

CE-8. Hydraulics.
CE-9. Railroad Engineering.
CE-11. Masonry Construction.
CE-4. Engineering Laboratory Work.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Winter Term

CE-12. Roofs and Bridges.
CE-13. Sanitary Engineering.
CE-14. Cost Keeping and Management Engineering.
S-14. Geology.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Spring Term

CE-15. Hydro-Electric Practice.
CE-10. Railroad Engineering.
S-15. General Astronomy.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.
T-1. Thesis.

THEODORE HYATT MEMORIAL OBSERVATORY

LABORATORY

OUTLINE OF COURSE IN CHEMISTRY

Degree: Bachelor of Science

The purpose of this course is not to fit the student for any particular branch of Applied Chemistry, but to give him a comprehensive knowledge of the fundamental principles of the science, so that he will be able himself to master any special line of analytical work in municipal, mining, engineering or industrial operations.

Visits of inspection to leading manufacturing establishments are made by the higher classes from time to time, the object being to acquaint the students, by personal observation, with chemistry as used in the arts, and to impress them with the highly practical value of their classroom appointments.

FOURTH CLASS

Fall Term

M-1. Advanced Algebra, through Quadratics.
CPS-1. Rhetoric.
EL-1. English Classics.
CPS-2. Letter Writing.
L-1. French or German or Latin.
D-1. Drawing: Use of Instruments; Simple Projections; Applied Geometry.
B-1. Bible: The Gospel according to Matthew.

Winter Term

M-3. Plane Geometry.
CPS-1. Rhetoric.
EL-1. English Classics.
CPS-3. Essay Writing.
L-2. French or German or Latin.
D-2. Drawing: Orthographic Projections; Intersections and Developments.
B-1. Bible: The Gospel according to Matthew.

Spring Term

M-4. Solid Geometry.
HE-1. General History.
EL-1. English Classics.
CPS-3. Essay Writing.
L-3. French or German or Latin.
D-3. Drawing: Machine Drawing.
B-1. Bible: The Gospel according to Matthew.

THIRD CLASS

Fall Term

M-2. Advanced Algebra, completed.
S-1. Physics, begun.
EL-2. English: Studies in Shakespeare.
CPS-4. Essay Writing and Declamations.
L-4. French or German or Latin.
D-4. Drawing: Descriptive Geometry.
B-2. Bible: First and Second Samuel.

Winter Term

M-5. Plane Trigonometry.
S-1. Physics, completed.
S-2. General Chemistry, begun.
EL-3. English: Studies in the English Drama.
CPS-4. Essay Writing and Declamations.
L-5. French or German or Latin.
D-5. Drawing: Technical; Shades and Shadows; Linear Perspective.
B-2. Bible: First and Second Samuel.

Spring Term

M-6. Analytic Geometry.
S-2. General Chemistry, continued.
S-3. Chemical Laboratory Work.
EL-4. History of American Literature.
CPS-4. Essay Writing and Declamations.
CPS-5. Business English.
L-6. French or German or Latin.
B-2. Bible: First and Second Samuel.

SECOND CLASS

Fall Term

M-7. Differential Calculus.
S-5. General Chemistry, completed.
S-7. Chemical Laboratory Work: Preliminary tests, bases and acids.
EL-5. History of English Literature.
CPS-6. Essay Writing, Public Speaking, Debating.
L-7. French or German or Latin.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Winter Term

M-8. Integral Calculus.
S-11. Industrial Chemistry.
S-8. Chemical Laboratory Work: Qualitative Analysis.
CPS-6. Essay Writing, Public Speaking, Debating.
L-8. French or German or Latin.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Spring Term

CE-2. Technical Mechanics.
S-11. Industrial Chemistry.
S-9. Chemical Laboratory Work: Quantitative Analysis, begun.
HE-2. Political Science.
CPS-6. Essay Writing, Public Speaking, Debating.
L-9. French or German or Latin.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

FIRST CLASS

Fall Term

CE-8. Hydraulics.
S-12. Organic Chemistry, begun.
S-9. Chemical Laboratory Work: Quantitative Analysis, continued.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Winter Term

S-14. Geology.
S-12. Organic Chemistry, completed.
S-9. Chemical Laboratory Work: Quantitative Analysis, completed.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Spring Term

S-15. General Astronomy.
S-13. Theoretical Chemistry.
S-10. Chemical Laboratory Work: Iron and Steel Analysis; Water Analysis; Organic Synthesis and Analysis; Assaying.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.
T-1. Thesis.

OUTLINE OF COURSE IN ARTS

Degree: Bachelor of Arts

The Course in Arts is designed to afford thorough training in the ancient classics, and to give due attention to such other branches as are regarded essential and fundamental in a liberal education.

FOURTH CLASS

Fall Term

GR-1. Greek: Anabasis; prose composition.
LA-1. Latin: Æneid; Bucolics.
M-1. Advanced Algebra, through Quadratics.
CPS-1. Rhetoric.
EL-1. English Classics.
CPS-2. Letter Writing.
B-1. Bible: The Gospel according to Matthew.

Winter Term

GR-2. Greek: Iliad.
LA-1. Latin: Æneid; Bucolics.
M-3. Plane Geometry.
CPS-1. Rhetoric.
EL-1. English Classics.
CPS-3. Essay Writing.
B-1. Bible: The Gospel according to Matthew.

Spring Term

GR-3. Greek: Odyssey.
LA-1. Latin: Æneid; Bucolics.
M-4. Solid Geometry.
HE-1. General History.
EL-1. English Classics.
CPS-3. Essay Writing.
B-1. Bible: The Gospel according to Matthew.

THIRD CLASS

Fall Term

GR-4. Greek: Herodotus.
LA-2. Latin: Livy.
M-2. Advanced Algebra, completed.
S-1. Physics.
EL-2. English: Studies in Shakespeare.
CPS-4. Essay Writing and Declamations.
B-2. Bible: First and Second Samuel.

Winter Term

GR-5. Greek: Demosthenes.
LA-3. Latin: Horace's Odes.
M-5. Plane Trigonometry.
S-2. General Chemistry.
EL-3. English: Studies in the English Drama.
CPS-4. Essay Writing and Declamations.
B-2. Bible: First and Second Samuel.

Spring Term

GR-6. Greek: Lucian.
LA-4. Latin: Horace's Satires.
M-6. Analytic Geometry.
EL-4. History of American Literature.
CPS-4. Essay Writing and Declamations.
CPS-5. Business English.
B-2. Bible: First and Second Samuel.

SECOND CLASS

Fall Term

GR-7. Greek: Æschylus.
LA-5. Latin: Cicero.
P-1. Mental Science: Logic (Jevons-Hill).
EL-5. History of English Literature.
CPS-6. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Winter Term

GR-8. Greek: Sophocles.
LA-6. Latin: Plautus.
P-2. Mental Science: Cognitive powers (McCosh).
S-6. Analytical Chemistry.
CPS-6. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

Spring Term

GR-9. Greek: Plato.
LA-7. Latin: Tacitus.
HE-2. Political Science.
CPS-6. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-1. Military Science.

FIRST CLASS

Fall Term

GR-9. Greek: Plato.
P-3. Mental Science: Motive powers (McCosh).
P-4. History of Philosophy (Weber).
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Winter Term

P-4. History of Philosophy.
P-5. Moral Science (Hickok).
S-14. Geology.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.

Spring Term

P-6. Ethics (Thilly).
S-15. General Astronomy.
CPS-7. Essay Writing, Public Speaking, Debating.
B-3. Bible: Genesis and Exodus.
MS-2. Military Science.
T-1. Thesis.

Courses of Instruction

MATHEMATICS

M-1. Advanced Algebra, through Quadratics. In addition to the thorough mastering of the principles of Algebra, this course includes graph work and logarithms. Milne's *Advanced Algebra.* Fourth Class, Fall Term, 5 hours.

M-2. Advanced Algebra, completed. Graphical representation, ratio and proportion, variation, imaginary and complex numbers, inequalities, variables and limits, interpretation of results, binomial theorem, uses of logarithms, series, undetermined coefficients, functions of a single variable, theory of equations, including Sturm's theorem and Horner's method for solving numerical equations. Milne's *Advanced Algebra.* Third Class, Fall Term, 5 hours.

M-3. Plane Geometry. Much emphasis is laid on original work and computation. Phillips and Fisher's *Elements of Geometry.* Fourth Class, Winter Term, 5 hours.

M-4. Solid Geometry. Phillips and Fisher's *Elements of Geometry.* Fourth Class, Spring Term, 5 hours.

M-5. Plane Trigonometry. Formulas, solution of right and oblique triangles and theory of logarithms. Granville's *Plane Trigonometry.* Third Class, Winter Term, 5 hours.

M-6. Analytic Geometry. The locus of an equation, a straight line, transposition of coördinates, the circle, polar coördinates, the parabola, ellipses, hyperbola, and some solid analytical geometry to acquaint the student with coördinates in space and with relations between surfaces, curves and equations in three variables. Smith and Gale's *Analytic Geometry.* Third Class, Spring Term, 5 hours.

M-7. Differential Calculus. Fundamental principles, differentiation of elementary forms, indeterminate forms, expansion of functions, rates and differentials, maxima and minima, asymptotes, contact and curvature, singular points and envelopes. Osborne's *Calculus.* Second Class, C.E. and B.S., Fall Term, 5 hours.

M-8. Integral Calculus. Principles of integration, reduction formulas, integration of rational functions, integration by rationalization, integration of trigonometric and other transcendental functions, integration as a summation, successive integration and practical geometric application. Osborne's *Calculus.* Second Class, C.E. and B.S., Winter Term, 5 hours.

COMPOSITION AND PUBLIC SPEAKING

CPS-1. Rhetoric. The purpose of this course is not only to train the student in the elements of composition, but also to make him master of a clear and vigorous style of expression. Scott and Denny's *Rhetoric;* Wooley's *Handbook of Composition.* Fourth Class, Fall and Winter Terms, 5 hours.

CPS-2. Letter Writing. Forms of correspondence. Fourth Class, Fall Term, 1 hour.

CPS-3. Essay Writing. The preparation of essays on topics of general interest and related to the work of the students. Fourth Class, Winter and Spring Terms, 1 hour.

CPS-4. Essay Writing and Declamations. Advanced work in essay writing and the preparation and delivery of a declamation in the Pollock Prize Contest. Each student receives individual training. Third Class, Fall, Winter and Spring Terms, 1 hour.

CPS-5. Business English. Buhlig's *Business English.* Third Class, Spring Term, 1 hour.

CPS-6. Essay Writing, Public Speaking, Debating. This course includes the preparation and delivery of an oration for the College Prize Contest in the Fall Term and an essay for the public exercises of the class in the Winter Term. Each cadet receives individual training. Second Class, Fall, Winter and Spring Terms, 1 hour.

CPS-7. Essay Writing, Public Speaking, Debating. This course includes the preparation of a technical essay for the public exercises in the Fall Term, an oration for the Winter Term, and an oration or a technical paper for graduation. Each cadet receives individual training. First Class, Fall, Winter and Spring Terms, 1 hour.

ENGLISH AND AMERICAN LITERATURE

EL-1. English Classics. The classics selected for study emphasize the literary, artistic, social and political principles underlying the development of all nations. Fourth Class, Fall, Winter and Spring Terms, 1 hour.

EL-2. Studies in Shakespeare. Third Class, Fall Term, 1 hour.

EL-3. Studies in the English Drama. Third Class, Winter Term, 1 hour.

EL-4. History of American Literature. Newcomer's *History of American Literature.* Third Class, Spring Term, 2½ hours.

EL-5. History of English Literature. Halleck's *English Literature.* Second Class, Fall Term, 5 hours.

DRAWING

Throughout all the Drawing Courses emphasis is laid on lettering and standard drafting practice.

D-1. Use of Instruments; Simple Projections; Applied Geometry. French's *Engineering Drawing*. Fourth Class, C.E. and B.S., Fall Term, 6 hours.

D-2. Orthographic Projections; Intersections and Developments. Fourth Class, C.E. and B.S., Winter Term, 6 hours.

D-3. Machine Drawings. French's *Engineering Drawing*. Fourth Class, C.E. and B.S., Spring Term, 6 hours.

D-4. Descriptive Geometry: Problems relating to points, lines and planes, together with the intersection and development of surfaces. The method of instruction consists of recitations as well as practice in the Drafting Room. Bird's *Descriptive Geometry*. Third Class, C.E. and B.S., Fall Term, 5 hours.

D-5. Technical Drawing: Shades and Shadows; Linear Perspective. The object of the course is to acquaint the student with the working drawings of engineering construction, the plotting of surveying notes and the making of estimates. Maps drawn during the course are traced and lettered. Bird's *Technical Drawing*. Third Class, C.E., and B.S., Winter Term, 5 hours.

HISTORY AND ECONOMICS

HE-1. General History. Myer's *General History* (revised). Fourth Class, Spring Term, 5 hours.

HE-2. Political Science. The rise of the governmental idea and its development in nations, ancient and modern, are critically examined, with particular reference to the extension of Roman law and the growth of Anglo-Saxon constitutions and institutions. Wilson's *The State*. Second Class, Spring Term, 5 hours.

SCIENCE

S-1. Physics. The aim of the instruction is to enable the student to comprehend natural phenomena and their causes; problems and original questions are propounded, to impress him with the laws that govern in this department of science, and to train him in the methods of thought employed. Five hours are devoted to class-room work, and an additional hour to an experimental lecture or other special work. Third Class, C.E. and B.S., Fall Term and part of Winter Term, 6 hours.

S-2. General Chemistry. Daily recitations and weekly lectures, of which accurate and complete notes are required. Each student performs sufficient practical work to acquaint him with the instruction and use of experimental apparatus and also to enable him personally to test the general properties and behavior of the most important elements and reagents, a report being required of each experiment and the results. Pond's *Chemistry*. Third Class, C.E. and B.S., part of Winter Term and Spring Term 4 hours.

S-3. Chemical Laboratory Work. Third Class, C.E. and B.S., Spring Term, 4 hours.

S-4. General Chemistry. Pond's *Chemistry,* completed. The general chemistry of the metals, with special emphasis on such portions as relate to the preparation and uses of building materials. Second Class C.E., Winter Term.

S-5. General Chemistry, completed. The metals. Richter's *Inorganic Chemistry*. Second Class, B.S., Fall Term, 2 hours.

S-6. Analytical Chemistry. Qualitative analysis, simple bases and acids. Second Class, C.E., Winter Term, 6 hours.

S-7. Chemical Laboratory Work. Preliminary tests, bases and acids. Pond and Harris' *Qualitative Analysis*. Second Class, B.S., Fall Term, 6 hours.

S-8. Chemical Laboratory Work. Qualitative analysis by both blowpipe and wet methods; the properties, uses and tests of compounds in general use. The work of the student is constantly under the eye of an instructor who subjects him to frequent quizzes. Second Class, B.S., Winter Term, 8 hours.

S-9. Chemical Laboratory Work. Quantitative analysis. The student is first taught how to use the balance, and then the principles of gravimetric analysis, as illustrated by a series of simple determinations. He then takes up volumetric analysis and learns the use of indicators. The quantitative separation and determination of a variety of substances, including commercial products, alloys and minerals. Second Class, B.S., Spring Term, 8 hours; First Class, B.S., Fall and Winter Terms, 10 hours.

S-10. Chemical Laboratory Work. Special analytical work, the nature of which is chosen by the student as the basis for his graduation thesis. First Class, B.S., Spring Term, 10 hours.

ALUMNI ASSOCIATION SCHOLARSHIP MEDAL—Gold

THEODORE HYATT SCHOLARSHIP MEDAL—Silver

S-11. Industrial Chemistry. The purpose of this course is to show the student how chemical principles are applied in the industrial world. The class-room work is supplemented by visits to manufacturing plants that are equipped with modern appliances. Thorpe's *Industrial Chemistry*. Second Class, B.S., Winter Term, 5 hours; Spring Term, 2 hours.

S-12. Organic Chemistry. Perkin and Kipping's *Organic Chemistry*. First Class, B.S., Fall and Winter Terms, 5 hours.

S-13. Theoretical Chemistry. In this course the student reviews laws and practices with which he is already familiar, considering them at length with the instructor in the light of recent investigations. The viewpoint taken is that of the physical chemist. Smith's *Theories of Chemistry*. First Class, B.S., Spring Term, 5 hours.

S-14. Geology. The subject is considered structurally, historically and dynamically. The aim is not to train the student as a specialist in this branch of science, but to familiarize him with some of its leading theories and most significant deductions, and to make him conversant with a wide range of important facts. Le Conte's *Elements of Geology*. First Class, Winter Term, 5 hours.

S-15. General Astronomy. This course includes a study of the phenomena of the heavenly bodies and their probable condition and history, including the doctrine of the sphere, corrections for observations, latitude, longitude, time: earth, moon and sun, with their motions, composition and characteristics: eclipses, tides, the planets and principal constellations. The instruction in the class-room is supplemented by such work in the Observatory as acquaints the student with the use of the instruments and the telescopic appearance of the heavens. Todd's *Astronomy*. First Class, Spring Term, 5 hours.

ENGINEERING

CE-1. Surveying. The theory of surveying; methods of keeping field notes, discussion of errors, methods of chaining, reading of verniers, calculation of bearings, methods of running transit lines, location of details, referencing points, theory of leveling, theory of stadia, locating a true meridian by observation on Polaris and the necessary calculations for plotting. Sufficient field work to emphasize each theoretical point. Tracy's *Plane Surveying*. Second Class, C.E., Fall Term, 10 hours.

CE-2. Technical Mechanics. The fundamental theoretic principles of statics, kinematics and dynamics, which form the basis of all engineering. Concurrent and non-concurrent forces, their resolution and composition; center of gravity; moment of inertia; resistance and work; gravity and motion; simple machines, etc. Maurer's *Technical Mechanics.* Second Class, C.E., Winter Term, B.S., Spring Term, 5 hours.

CE-3. Mechanics of Materials. Properties of materials; elastic limits; ultimate strengths; modulus of elasticity; strength of pipes, cylinders and riveted joints; theory of flexure; simple and cantilever beams; columns. Use of engineering handbooks. Boyd's *Strength of Materials.* Second Class, C.E., Spring Term, 5 hours.

CE-4. Engineering Laboratory Work. The testing of materials. The laboratory is equipped with a Riehlé screw machine of 50,000 pounds capacity, for tension, compression and transverse stresses, the power being furnished by a two horse-power electric motor; and a Riehlé cement tester of 2000 pounds capacity, with molds, sieves and measures. Second Class, C.E., Spring Term, 1 hour; First Class, C.E., Fall Term, 1 hour.

CE-5. Topographical Surveying. The solving of miscellaneous problems in the field. Each student while in charge of the party must plan his work with the thought in view that the execution of the work within a reasonable time limit as well as with the required degree of accuracy is essential. Tracy's *Plane Surveying.* Second Class, C.E., Spring Term, 5 hours.

CE-6. Highway Engineering. Theory and practice of earth, gravel, broken stone, bituminous macadam, bituminous concrete, wood block, stone block, brick and concrete highways. A short survey of an existing road is made, plotted and studied. Blanchard and Drowne's *Highway Engineering.* Second Class, C.E., Spring Term, 4 hours.

CE-7. Safety Engineering. Customary methods of fire prevention and fire protection, methods and devices for protecting the workman. Second Class, C.E., Spring Term, 1 hour.

CE-8. Hydraulics. Hydrostatics, theoretical hydraulics, flow of liquids, hydraulic motors, pumps and pumping. Merriman's *Hydraulics.* First Class, C.E. and B.S., Fall Term, 5 hours.

CE-9. Railroad Engineering. The class is organized as a corps under the Professor of Engineering and

makes a reconnaissance and preliminary survey for a railroad. The field notes are plotted, grades and curves determined, and calculations of the quantities and estimates of the cost made preparatory to locating the line. Allen's *Railroad Curves and Earthwork*. First Class, C.E., Fall Term, 5 hours.

CE-10. Railroad Engineering. The final survey of the railroad located in the Fall Term is made; the curves are run, the slope stakes set, and the culverts, bridges, crossings, switches and turn-outs located. The more common problems confronting the young maintenance-of-way engineer are also taken up for consideration. Allen's *Railroad Curves and Earthwork*. First Class, C.E., Spring Term, 4 hours.

CE-11. Masonry Construction, including description of the materials used, their preparation and arrangement in structure, together with the theory and practice of reinforced concrete. Taylor and Thompson's *Reinforced Concrete;* Hewer's *Masonry*. First Class, C.E., Fall Term, 4 hours.

CE-12. Roofs and Bridges. Calculation by analytical and graphical methods of the stresses in roofs and bridge trusses for dead and live loads, together with their final maximum and minimum stresses. Use of slide rule and solution of many problems. Johnson and Turneauvre's *Framed Structures*. First Class, C.E., Winter Term, 10 hours.

CE-13. Sanitary Engineering. General sanitary science, water and its purification, water supply systems, sewerage systems, disposal of sewage, refuse and garbage. Merriman's *Sanitary Engineering*. First Class, C.E., Winter Term, 3 hours.

CE-14. Cost Keeping and Management Engineering. The purpose of this course is to make the student a business man as well as a constructor or a designer. It is of value not only to the student that follows civil engineering as a vocation, but also to the one that engages in any occupation that requires the direction of the efforts of others. It includes laws of management, piece rate, bonus and other systems of payment, measuring output of workmen, cost keeping, office appliances and methods, bookkeeping for contractors. Gillette and Dana's *Cost Keeping and Management Engineering*. First Class, C.E., Winter Term, 2 hours.

CE-15. Hydro-Electric Practice. The purpose of this course is to acquaint the student rather with the civil

than the electrical side of such developments. The commercial as well as the engineering phases governing construction work are considered, including market, power opportunity, feasibility and practicability, and cost of developments. Survey, development program and types of structure. Von Schon's *Hydro-Electric Practice.* First Class, C.E., Spring Term, 2 hours.

THESIS

T-1. Thesis. Each student is required to prepare a thesis on some subject germane to his course of study, under the supervision of one of the professors. The object of this instruction is to acquaint the student with the methods of handling engineering, chemical and similar questions, and to develop originality of thought and resourcefulness of investigation. The college retains the theses and the drawings illustrating them. First Class, Spring Term.

MILITARY SCIENCE

MS-1. Instruction, theoretical and practical, in Minor Tactics in the handling of bodies of men to and including the battalion. U. S. Army *Infantry Drill Regulations,* U. S. Army *Manual of Interior Guard Duty,* Wagner's *Field Service Regulations.* Second Class, Fall, Winter and Spring Terms, 1 hour.

MS-2. Instruction, both theoretical and practical, in advanced infantry drill, the use of small arms, service of security and information (advance guard and rear guard, outpost duty, patrolling, reconnaissance), field service (food and ammunition supply, transportation, sanitation and hospital), laws of war, map making and reading, and problems of offense and defense. Frequent lectures on Military Engineering and similar subjects. Writing of official communications and preparation of official papers and keeping of rosters on blanks supplied by U. S. War Department. U. S. Army *Infantry Drill Regulations,* U. S. Army *Firing Regulations for Small Arms,* U. S. Army *Field Service Regulations,* Beach's *Manual of Military Field Engineering.* First Class, Fall, Winter and Spring Terms, 1 hour.

BIBLE

Sunday morning at 8.45 all students have recitation on assigned parts of the Bible, under the charge of professors.

B-1. Gospel according to Matthew. Fourth Class, Fall, Winter and Spring Terms, 1 hour.

B-2. First and Second Samuel. Third Class, Fall, Winter and Spring Terms, 1 hour.

B-3. Genesis and Exodus. Second and First Classes, Fall, Winter and Spring Terms, 1 hour.

FRENCH

L-1. Maupassant's *Contes Choisis.* Fourth Class, Fall Term, one-half hour daily.

L-2. Moliere's *Le Bourgeois Gentilhomme.* Fourth Class, Winter Term, one-half hour daily.

L-3. Composition, both French into English and English into French. Fourth Class, Spring Term, one-half hour daily.

L-4. Dumas' *La Question d'Argent.* Third Class, Fall Term, one-half hour daily.

L-5. Zola's *Les Voyages en Egypte.* Third Class, Winter Term, one-half hour daily.

L-6. Advanced Composition; conversation; Bacon's *Une Semaine à Paris.* Third Class, Spring Term, one-half hour daily.

L-7. Ardouin-Dumazet's *La France Qui Travaille.* Second Class, Fall Term, one-half hour daily.

L-8. Rostand's *Cyrano de Bergerac;* Musset's *Trois Commedies.* Second Class, Winter Term, one-half hour daily.

L-9. Michelet's *Histoire de France;* sight reading and conversation. Second Class, Spring Term, one-half hour daily.

GERMAN

L-1. Storm's *Immensee* and Gronow's *Jung Deutschland.* Fourth Class, Fall Term, one-half hour daily.

L-2. Moser's *Der Bibliothekar.* Fourth Class, Winter Term, one-half hour daily.

L-3. Allen's *First German Composition.* Fourth Class, Spring Term, one-half hour daily.

L-4. Evans and Merchant's *Ein Charakterbild von Deutschland.* Third Class, Fall Term, one-half hour daily.

L-5. Stern's *Der Wildertaufer.* Third Class, Winter Term, one-half hour daily.

L-6. Conversation; Patton's *An American in Germany.* Third Class, Spring Term, one-half hour daily.

L-7. Wait's *German Science Reader.* Second Class, Fall, Term, one-half hour daily.

L-8. Prehn's *Journalistic German;* Kutner's *Commercial German.* Second Class, Winter Term, one-half hour daily.

L-9. Carl Schurz's *Lebenserinnerungen;* sight reading and conversation. Second Class, Spring Term, one-half hour daily.

LATIN

L-1. Bennett's *First Year Latin,* completed; Rolfe and Dennison's *Junior Latin Book,* begun. Fourth Class, Fall Term, one-half hour daily.

L-2, L-3. Rolfe and Dennison's *Junior Latin Book,* continued. Fourth Class, Winter and Spring Terms, one-half hour daily.

L-4. Rolfe and Dennison's *Junior Latin Book,* completed. Third Class, Fall Term, one-half hour daily.

L-5, L-6. Bennett's *Cicero: In Catilinam,* four orations. Third Class, Winter and Spring Terms, one-half hour daily.

L-7, L-8. Greenough's *Virgil: Aeneid,* three books. Second Class, Fall and Winter Terms, one-half hour daily.

L-9. Kelsey's *Ovid;* sight reading. Second Class, Spring Term, one-half hour daily.

The Preparatory Courses

For students not fully prepared for the Collegiate Courses, two preparatory courses are offered.

The SCIENTIFIC PREPARATORY COURSE covers two years, during which Arithmetic, English Grammar, Elementary English Composition, Geography, United States History and English History are completed, and Algebra and Language (French, German or Latin) begun.

In the CLASSICAL PREPARATORY COURSE, Arithmetic and English History are completed, work in Latin is continued, and the student begins the study of both Algebra and Greek.

There are also regular appointments in Composition-writing, Readings in Classics, Word Studies and Penmanship.

Outline of Preparatory Courses

SCIENTIFIC PREPARATORY

SECOND CLASS

ARITHMETIC, STANDARD, from Fractions.....*Milne*
ENGLISH: Grammar .....*Scott and Buck*
HISTORY, AMERICAN, to the Revolution.
GEOGRAPHY.
SPELLING; PENMANSHIP.
PROMPT AID TO THE INJURED.....*Doty*
BIBLE: The Gospel according to Matthew.
LETTER WRITING.

FIRST CLASS

FALL TERM

ARITHMETIC, STANDARD, completed, from Interest...*Milne*
ALGEBRA, begun .....*Milne*
ENGLISH: { Grammar .....*Scott and Buck*
Readings.
HISTORY, AMERICAN, completed ....*Woodburn and Moran*
WORD-STUDIES.
PENMANSHIP: { Business Correspondence.
Transcribing.
PROMPT AID TO THE INJURED.....*Doty*
BIBLE: The Gospel according to Matthew.
LETTER WRITING.

Winter Term

Algebra, continued ..... *Milne*

English: { Grammar ..... *Scott and Buck*
Writing in English, begun. . . *Scott and Denny*
Readings.

*Language: { (1) French — Fontaine's *Nouveau Cours Français,* Bruno's *Le Tour de la France.*
(2) German Mosher's *Lehr und Lese buch,* Bacon's *Vorwärts.*
(3) Latin—Bennett's *First Year Latin.*

English History, begun..... *Higginson and Channing*
Prompt Aid to the Injured..... *Doty*
Bible: The Gospel according to Matthew.
Letter Writing.

Spring Term

Algebra, Advanced, to Radicals ..... *Milne*

English: { Writing in English, completed ..... *Scott and Denny*
Readings.

Language, work of Winter Term completed.
English History, completed .... *Higginson and Channing*
Prompt Aid to the Injured..... *Doty*
Bible: The Gospel according to Matthew.
Essay Writing.

CLASSICAL PREPARATORY

Fall Term

Greek: Lessons, begun..... *White*
Latin: First Year Latin, completed ..... *Bennett*
Arithmetic, Standard, completed, from Interest... *Milne*
Algebra, begun ..... *Milne*
English: Readings.
Prompt Aid to the Injured ..... *Doty*
Bible: The Gospel according to Matthew.
Letter Writing.

Winter Term

Greek: Lessons, completed ..... *White*
Latin: Cæsar, begun ..... *Allen and Greenough*
Algebra, continued ..... *Milne*
English: Readings.
English History, begun ..... *Higginson and Channing*
Prompt Aid to the Injured ..... *Doty*
Bible: The Gospel according to Matthew.
Letter Writing.

*One Language required.

Spring Term

Greek: Anabasis, one book ..... *White*
Latin: Cæsar, continued ..... *Allen and Greenough*
Algebra, Advanced, to Radicals..... *Milne*
English History, completed .... *Higginson and Channing*
English: Readings.
Prompt Aid to the Injured ..... *Doty*
Bible: The Gospel according to Matthew.
Essay Writing.

Requirements for Admission

Candidates for admission to the various courses or preparatory classes will be examined in the following subjects:

COURSES IN CIVIL ENGINEERING AND CHEMISTRY*

Fourth Class

Arithmetic; Algebra, to Radicals; English Grammar and Composition; Geography; United States History; English History; and either French (*a,* Grammar, Fontaine; *b,* Le Tour de la France, Bruno; *c,* Le Français et sa Patrie, Talbot), or German (*a,* German Grammar, Mosher; *b,* Vorwärts, Bacon; *c,* Deutsche Wirtschaft, Loening and Arndt, or the equivalent), or Latin (the declensions and conjugations).

COURSE IN ARTS*

Fourth (*Freshman*) Class

Arithmetic; Algebra, to Radicals; English Grammar and Composition; Geography; United States History; English History; and the Latin and Greek appointed for study in the Classical Preparatory Class, see page 36.

FIRST SCIENTIFIC PREPARATORY CLASS

Arithmetic, to Interest; Essentials of English Grammar; Geography; History of the United States, to the Revolution; Orthography.

CLASSICAL PREPARATORY CLASS

Arithmetic, to Interest; Bennett's First Year Latin (the declensions and conjugations); English Grammar; Geography; History of the United States; Orthography.

* Questions in General Literature and in Mediæval and Modern History will be asked; not, however, as admission tests, but as a means to a fuller knowledge of the candidate's scholastic attainments and needs.

Masters' Degrees

The Masters' Degrees are conferred in course only upon those who have taken the corresponding baccalaureate degrees at the College and fulfilled the appointed conditions.

Master of Civil Engineering: To secure this degree, the candidate must have been engaged in practical engineering and have been in responsible charge of such work for a period of at least five years. He must also present a satisfactory thesis giving a description and the details of construction of engineering work of importance planned and executed under his personal direction.

Master of Science: To secure this degree, the candidate must spend at least one year in graduate work at the College, present a thesis evidencing ability to conduct important original investigations, and pass the required examinations. Or he must have been engaged continuously for five years in practical work as a chemist, an assayer, a geologist, or a worker in some other branch of Applied Science; he must also present a satisfactory thesis giving the details of important investigations pursued or professional work performed.

Master of Arts: This degree is conferred, on application, upon graduates in Arts that have been engaged for five years in literary pursuits of either a scholastic or a professional character.

Graduates that have been engaged for five consecutive years in teaching either Civil Engineering or Chemistry are, on application, granted the respective Masters' Degrees, provided the work done has been of sufficiently high character. A candidate applying under this condition must present a satisfactory thesis upon a subject assigned conjointly by the President of the College and the Professor directing the course in Science represented in such degree.

All theses of candidates for Masters' Degrees must be placed with the President of the College on or before the first day of May preceding the Annual Meeting of the Board of Trustees at which the degree is expected to be conferred.

Grades, Honors and Prizes

Gradings in Merit Roll

A report is made to each patron at the close of both Fall and Winter Terms, giving in detail the record of the cadet. At the end of the session, a Merit Roll is printed and mailed to each patron.

The Merit Roll gives an exact and comprehensive view of the scholarship, deportment, military proficiency, and attendance of the cadets. The Normal Grade in each is 100, and its retainment implies a high order of merit. This grade is lowered by deficient scholarship, violation of rule, military negligence or inefficiency, or absence.

In calculating the Average Grade, Scholarship counts 5, Deportment 2, Military Exercises 2, and Attendance 1.

The star (⋆) prefixed to a name signifies that the cadet is one of the Six Honor Men of the year.

When in any department of duty the grade falls to zero, the cadet is, *ipso facto,* dismissed from the College.

The Grade of Honor

The GRADE OF HONOR is conferred in accordance with the requirement of the Charter that the President of the College shall report annually to the Governor of the State "the names of the six cadets in the Collegiate Department who, during the scholastic year then last past, have stood highest on the rolls of the said institution in conduct, scholarship and military exercises, with the specific branches in which they have excelled."

In the Merit Roll the name of an honor man is distinguished by a star (⋆). A cadet graduating with the Grade of Honor is credited in the Merit Roll, and permanently in the Official List of Graduates, with one star for each year in which he secured this distinction during his course.

At a public exercise held early in the Fall Term, a general order is published naming the honor men of the previous year then in attendance, and directing the institution

to place upon the collar of the uniform of each, two embroidered stars, the same to continue a feature of his uniform until graduation.

Collegiate Prizes and Medals

The Engineering Thesis Prize: A valuable technical work to the cadet of the First Class in the Course in Civil Engineering that submits the best thesis on a subject germane to this course of study. The thesis, being a part of the regular work required by the curriculum, is graded in the scholarship record of the Spring Term.

The John A. Gensemer Memorial Prize: A standard work of reference to the cadet of the First Class in the Course in Chemistry that makes the highest record in the chemical studies of the Second and First Class years.

The College Oratorical Prize: A literary work of value to the cadet of the Second Class that excels in Oratory at the public exercises of the Class in the Winter Term.

The Pollock Prize: A choice edition of an English classic to the cadet of the Third Class that excels in Declamation at the public exercises of the Class in the Spring Term. This prize was named in honor of James Pollock, a former Governor of Pennsylvania, who for thirty years (1862-1891) was President of the Board of Trustees of this institution, and whose fidelity to that trust is held in grateful remembrance.

The Alumni Association Medal: A gold medal to the cadet of the Second Class that maintained, during the Third Class year, the highest class record in Scholarship, in conjunction with "excellent" standing (ninety per cent. or upwards) in Deportment, Military Exercises and Attendance.

The Theodore Hyatt Medal: A silver medal to the cadet of the Third Class that maintained, during the Fourth Class year, the highest class record in Scholarship, in conjunction with "excellent" standing (ninety per cent. or upwards) in Deportment, Military Exercises and Attendance.

At a public exercise held early in the Fall Term, the Scholarship Medals are conferred by a general order, which further appoints them to be worn with the full-dress uniform on all public occasions.

Military Honors and Decorations

THE WAR DEPARTMENT RECORD

By direction of the War Department of the United States, the College, at the close of the session, submits for official record in the office of the Adjutant General of the Army the names of the three cadets in the Graduating Class most distinguished in Military Science and Tactics. A similar report is made upon each of such cadets to the Adjutant General of his State.

MARKSMANSHIP MEDAL

The Alumni Association annually confers bronze medals on cadets that qualify as marksmen under the regulation appointing target practice.

All firing is conducted by experienced instructors, and the records are made at three ranges—two hundred, three and five hundred yards respectively.

For each session that a cadet qualifies as marksman, he receives a bar bearing the figures of the current calendar year, the same to be attached to the medal proper.

A gold bar is furnished cadets that qualify as sharpshooters.

JOHN G. BERGFELS CAVALRY MEDAL

The rarely beautiful medal awarded for proficiency in the cavalry drill is an annual contribution from the family of the late Mr. Julius Bergfels, of Newark, N. J. Established by him in 1897, to honor the memory of a young soldier brother that met his death on a battlefield of the Civil War, his skillful hand for sixteen years gave the finishing touches to each exquisite jewel. Such a manifestation of brotherly affection has greatly enhanced in sentiment and suggestion its value as a prize.

MILITARY MEDALS

BERGFELS MEDAL

Gold—Diamond Tipped

TREXLER TROPHY

Gold, Silver and Enamel

OLIVER REVOLVER MEDAL

Gold

ALUMNI MARKSMANSHIP MEDAL

Bronze

First Sergeant John G. Bergfels enlisted as a private in the First New Jersey Volunteer Militia, on the call for three months men, April 30, 1861, and was mustered out July 31, 1861. He reëntered the service as corporal in the Third New York Volunteer Cavalry, November 15, 1861, and was subsequently transferred to the First New Jersey Volunteer Cavalry, in which regiment he became first sergeant of his troop. He fell mortally wounded near Todd's Tavern (Wilderness, Va.), in the great battle of May 5 and 6, 1864, between Generals Grant and Lee. During his career as a cavalryman, Sergeant Bergfels took part in upwards of eighty important skirmishes and engagements, including Second Bull Run, Chantilly, the Antietam and Fredericksburg campaigns, Stoneman's Raid, the cavalry fight at Brandy Station and the campaigns of Mine Run and Gettysburg.

TREXLER TROPHY

Colonel Harry C. Trexler, of Allentown, Pa., presents annually the medal known as The Trexler Trophy, for award to the "champion shot" of the year. In its composition gold, silver and blue enamel are blended in highly artistic design.

A special prize for excellence in range work was first offered in 1905 by Mr. James R. Shanley, Class of 1894, who requested that the award be made an annual event. Following his death, in 1911, Colonel Trexler generously directed the College to continue, at his expense, the prize for highest record in marksmanship.

The contest for the Trophy is open to every member of the Corps of Cadets.

OLIVER REVOLVER MEDAL

The Revolver Medal is an annual award for highest record in range-practice. This work extends throughout the year, and is conducted in conformity with National Guard requirements, adapted in measure to meet the College conditions, such being the appointment of the original donor, the late Captain Alexander L. Oliver, of Jersey City, N. J., Class of 1888. Under instructions from his honored

widow this medal is now an established memorial. A characteristic design, beautifully worked out in gold and enamel, makes this trophy a valuable addition to the military prize list of the year.

LOVELAND CUP

A contest in rifle marksmanship between representative teams selected respectively from the graduate body and the Corps of Cadets is held annually during the Spring Term. That the results of this competition should remain a matter of permanent and public record, MAJOR JOHN W. LOVELAND, of Englewood, N. J., Class of 1887, presented to the College a loving cup of beautiful design, upon which the names of the members of the competing teams are inscribed from year to year, together with the respective scores.

SHIRLEY CUP

Following the establishment of revolver practice at the College rifle range, announcement was made of the holding of an annual contest between two teams, to be composed respectively of representative marksmen selected from the Alumni and the Corps of Cadets. To encourage cadets to special effort in the work, MAJOR JOSEPH W. SHIRLEY, of Baltimore, Md., Class of 1891, placed with the institution a loving cup, of handsome form and generous proportions, on which to make record of the results of the Annual Revolver Match.

A cadet holding either the Cavalry, Champion Shot or Revolver Medal is debarred from again competing.

The military medals are conferred during the exercises of Alumni Day, and worn on the full-dress uniform on all public occasions. The Alumni Marksmanship Medals are a part of the dress uniform also.

LOVELAND CUP

SHIRLEY CUP

Athletic Prizes

At the close of the Fall, Winter and Spring Terms, respectively, the College Athletic Board finally awards letters to the members of the various varsity teams deemed worthy such recognition. The letters are worn on the regulation sweater and constitute a distinctive and permanent mark of excellence in the sport so recognized.

At the Gymnasium exhibition held annually in March, prizes are awarded for *excellence,* and for *greatest improvement* in indoor athletics. The excellence prizes are known respectively as the L. Webster Fox Athletic Prize and the Mabel Lee Hyatt Athletic Prize. At the same time, the greatest improvement prizes, known respectively as the John B. Roach and William S. Blakeley Prizes, are announced, and awarded by a committee of cadets, of which the Instructor in Gymnastics is chairman.

The Morris Trophy, a handsome silk banneret, is annually presented the College at the close of the Gymnasium Exhibition. It makes official record of the winning team in the Inter-class Basketball Contest conducted during the Winter Term.

The College Tennis Prizes, won in the Inter-class Tennis Tournament held during the Spring Term, are formally awarded during Commencement Week.

Expenses

TERMS PER ANNUM

Tuition, with board, washing and pew rent.....$700.00
Tuition, First, Second and Third Classes (Collegiate), additionally 20.00
Athletic dues 10.00

INCIDENTAL EXPENSES: Uniforms and military outfit, books, stationery and medical service.

OPTIONAL EXPENSES: Cavalry drill, $90.00; lessons in dancing; instruction on piano, violin, guitar.

The charges for the session are payable: one-half on entering, the remainder on the 1st of January. Cadets entering after the second week of the Fall Term are charged *pro rata* from date of entrance only; and pay one-half on entering, the remainder on the 1st of January. Cadets entering on or after the 1st of January are charged *pro rata* to the end of the session.

Drafts are forwarded for all bills not paid within ten days after presentation.

It is a condition on which the cadet is admitted that he shall remain in the College until the end of the current session, unless he be sooner discharged by the President.

All bills are payable to "Treasurer, Pennsylvania Military College."

Property of the College injured by a cadet is repaired at his expense; but, if the perpetrator is unknown, the cost of repair is assessed equally among the members of the Corps.

If sickness detains any cadet from the College longer than one month, nine dollars a week is refunded, as the estimated cost of board and washing.

The charges for cadets remaining at the College during vacations are proportionately the same as during term time.

Spending money may be deposited with the Treasurer.

Expense is not incurred for a cadet except upon an order on account of funds previously deposited with the Treasurer; but the attendance of a son or ward is considered an order to furnish him with, and keep in repair, the articles specified in this Catalogue.

OUTFIT AND ROOM FURNITURE

All military clothing, trimming, and equipment must be strictly according to authorized pattern, and, together with articles marked thus (*) in the Inventory, *must be procured of the Quartermaster of the College.*

The regulation clothing consists of a full-dress uniform, a dress uniform, and an overcoat, all of cadet gray, together with three pairs of white duck trousers, three gray woolen shirts, a pair of regulation leggings, a full-dress hat, a dress cap, a campaign hat, and rubber poncho. Cadets less than five feet three inches in height do not wear the full-dress uniform.

INVENTORY

Two pairs of suspenders.
Two pairs of shoes, black calfskin, with medium soles (pattern, Balmoral or Blucher).
One pair of leather slippers (pattern, Tourist).
One pair of overshoes.
*Six pairs of Berlin gloves.
Six négligé shirts.
*Twelve standing collars.
Twelve pairs of white cuffs.
Six pairs of socks.
Four pairs of drawers.
Four undershirts.
Three nightshirts, or pajamas.
One bath robe.
*One regulation sweater.
Twelve handkerchiefs.
*Eight towels.
Three bath towels.
*Six table napkins.
Six sheets—7 x 4½ feet.
Six pillow cases—20 x 32 inches.
*One clothes bag.
One clothes brush.
One hair brush.
One comb.
One tooth brush.
*One looking glass.
One blacking brush.

This list has been prepared in order that parents may not send unnecessary articles; for, while at the College, cadets wear only the dress prescribed.

Upon application, the cadet will be furnished with any article named.

All furniture necessary for the comfort of cadets is supplied by the institution; but carpets and wall-decorations are allowed in rooms, under special regulations.

NOTES ON REGULATIONS

Obedience to the regulations is required of all cadets.

Cadets in the Collegiate Department study in their private rooms. Cadets in the Preparatory Classes, when it is deemed expedient, study in a class-room, under the direction of an instructor.

At tattoo, cadets are required to be in their respective rooms. At taps, lights are extinguished, and each cadet retires to his own appointed bed. The regulations for Cadet Quarters enjoin quietness from taps until reveille.

The use of any alcoholic drink is strictly prohibited. The penalty for the violation of this regulation is expulsion.

Regulations are enforced to prevent the excessive use of tobacco by those addicted to it, and to protect other cadets from the influence of pernicious example. *Cigarettes are prohibited.*

Cadets are forbidden to have cards or dice in their possession.

The right to inspect all articles sent to cadets is reserved; any article deemed objectionable will be returned to the sender.

Patrons are requested not to send provisions of any kind to the College.

Cadets must not contract debts without permission from the Treasurer.

Cadets are required to be present at the first roll-call after each vacation.

The grade in Attendance is reduced by any absence on furlough during the term. Overstaying a furlough without adequate cause additionally impairs the grade in Deportment.

Furloughs are not granted during term time, unless the judgment of the President determines them to be strictly necessary. For the vacations, furloughs are granted only to cadets that wish to leave Chester, or that have relatives residing in the vicinity of the College. It is very desirable that cadets spend their vacations at their homes. The associations formed by the student when released from scholastic

rule, and at the same time free from the restraining influences of the domestic circle, are often detrimental to his well-being.

Cadets remaining at the institution during the vacations are subject to regulations and pursue such studies as the President assigns.

The general system of discipline consists of five grades of standing, denominated respectively: Correct, and First, Second, Third and Fourth Delinquent. Each grade of delinquency has a certain class of penalties attached. These penalties consist principally of extra guard-duty, deprivation of privileges, and reduction of grade in Deportment in the Merit Roll.

Saturday afternoon, between the hours of two and six, is the only time designated for parents and friends of cadets to visit them.

Visiting the College on Sunday is positively prohibited.

Public Events of the Past Session

Wednesday, Thursday, Friday, September 23, 24, 25

Exhibition Drills by the First Cavalry Squad at Allentown, Fair, Allentown, Pa.

Tuesday Evening, October 6

Official Conferring of Under-Graduate Honors and Prizes.
Address by L. Webster Fox, M.D., LL.D., of Philadelphia.
Theme: "He Can Who Thinks He Can."
Informal Reception and Hop.

Friday Evening, October 16

Reception and Hop to New Cadets.

Thursday Afternoon, October 19

"Old Home Week," Wilmington, Delaware. Exhibition Drill at Rockford Park before Governor Charles R. Miller and Mayor Harrison E. Howell.

Friday Evening, November 13

College Oratorical Prize Contest, Class of 1916.
Judges: Rev. Frank MacDonald, Dr. Fred Smith, Mr. Charles F. Long.

Friday Evening, November 20

Reception and Hop, under auspices of Corps of Cadets.

Friday Evening, December 4

Reading of Technical Essays, Class of 1915.

Friday Evening, January 29

Reception and Hop to Corps, by Class of 1917.

Friday Evening, February 12

Reading of Technical Essays, Class of 1916.

Monday, February 22

Exercises commemorative of Washington's Birthday.
Morning—Address by Hon. William Ward, Jr., Mayor of Chester.
Theme: "Washington, and early history of Nation in relation to Chester."
Inter-class Rifle Match—won by Class of 1916.
Evening—Entertainment by professional talent. Informal Reception and Hop.

Tuesday Afternoon, February 23

First Competitive Ride for the John G. Bergfels Cavalry Medal.
Troop work, horsemanship and individual exercises.
Judges: Captain Thomas B. Myers, Troop G., N. G. P.; Lieut. Philip S. Gage, Coast Artillery Corps, U. S. A.; Lieut. Earl B. Hochwalt, Coast Artillery Corps, U. S. A.

Friday Evening, March 5

Oratorical Exercises, Class of 1915.

Friday Afternoon, March 12

Second Competitive Ride for the JOHN G. BERGFELS CAVALRY MEDAL.

Exercises: Troop work, horsemanship and individual exercises.

Judges: CAPTAIN ROBERT S. WELSH, Quartermaster Corps, U. S. A.; CAPTAIN JUNIUS C. GREGORY, Medical Corps, U. S. A.; CAPTAIN GORDON JOHNSTON, Eleventh Cavalry, U. S. A.

Friday Evening, March 19

Indoor Athletic Exhibition and Prize Contest.

Judges: MR. WILLIAM DUTTON, MR. JOHN MAIS, MR. OTTO SCHUSTER.

Friday Evening, April 30

Pollock Declamation Prize Contest, Class of 1917.

Judges: A. A. COCHRANE, ESQ., ALBERT D. MACDADE, ESQ., MR. JOHN L. WETHERILL.

Friday Evening, May 14

Reception and Hop to Corps, by Class of 1916.

Wednesday Afternoon, May 19

Final Competitive Ride for the JOHN G. BERGFELS CAVALRY MEDAL, on College Campus.

Exercises: Troop work, horsemanship and individual exercises.

Judges: COLONEL FRANK G. SWEENEY, Inspector General, N. G. P.; CAPTAIN ROBERT S. WELSH, Quartermaster Corps, U. S. A.; CAPTAIN JUNIUS C. GREGORY, Medical Corps, U. S. A.

Thursday, May 20

Annual U. S. Inspection of Military Department of College.

Inspecting Officer: CAPTAIN JAMES P. ROBINSON (Coast Artillery), General Staff, U. S. A.

Baccalaureate Sunday, June 13

Sermon by REV. CARL E. GRAMMAR, D.D., of Philadelphia, in St. Paul's Episcopal Church.

Alumni Day, Tuesday, June 15

Rifle and Revolver Contests for record on LOVELAND and SHIRLEY CUPS, Alumni vs. Cadets..

Field Events, Cadets.

Baseball Game, Alumni vs. Cadets.

Review of Cadets Battalion by MAJOR FREDERIC N. WHITLEY, N. G. N. Y., President of the Alumni Association.

Conferring of BERGFELS, OLIVER, TREXLER and ALUMNI MILITARY MEDALS.

Infantry, Cavalry, Artillery Drills.

President's Reception, 8 P. M.

Commencement Day, June 16

Annual Meeting of Board of Trustees.

Literary Exercises, Orations and Conferring of Degrees.

Military Exercises before Board of Trustees.

Annual Meeting of College Alumni Association.

Special Events of the Past Session

Monday Evening, November 2

Hallowe'en Festivities, under direction of Class of 1916.

Thanksgiving Day, Thursday, November 26

Morning—Corps in attendance at church services.
Afternoon—Football game with Maryland Agricultural College.
Evening—Corps in social festivities.

Monday Evening, January 11

"A Midsummer Night's Dream,"—Impersonations by Mr. Charles F. Underhill, of New York City.

Tuesday Evening, January 19

"Manufacture of Portland Cement"—Illustrated lecture by Mr. Fred M. Schilling, under auspices of Lehigh Portland Cement Company.

Thursday, January 28

College Day of Prayer——Services under direction of Rev. Albany R. Smith, "Gypsy Smith, Jr."

Tuesday Morning, February 23

"A Straight Talk to Young Men,"—Address by Dr. Charles E. Barker, late Physical Adviser to Ex-President William H. Taft.

Friday Evening, February 26

"How to Live a Hundred Years,"—Lecture by Dr. Charles E. Barker.

Friday Morning, March 19

Brief address to Corps by Rev. William A. Sunday.

Monday Evening, April 26

"The Art of Laughter"—Lecture by Rev. Madison C. Peters, D.D., of New York City.

Saturday, May 29 to Friday, June 4

Instruction Camp ("Camp Birkinbine") at Perkiomen Junction, Pa.

Military program—Guard Duty, Advance Guard, Rear Guard and Outpost Problems.

ALUMNI LODGE

Degrees Conferred in 1915

Degrees in Course

BACHELOR OF SCIENCE

(*Chemistry*)

Frederic Farwell Long,
Raymond Eugene Stone.

CIVIL ENGINEER

Keith Baldwin Hubbard,
F. Cavarre Lloyd,
Knapp Milburn,
Frank Hart Peters,
David H. Lane Powers,
Arthur Henry Strauss,
Robert Anewalt Young.

Prize Announcements for 1914-15

Engineering Thesis Prize

Design of a Steel Roof Truss.
F. Cavarre Lloyd.

College Oratorical Prizes

First Prize—Julius Arnowitz.
Second Prize—Alexander Carson Simpson.
Honorable Mention—Harold Vernon Carson.

Pollock Declamation Prizes

First Prize—Robert Ruppin.
Second Prize—Charles Rudolph Williamson.

Alumni Association Scholarship Medal

Alexander Carson Simpson.

Athletic Prizes

Excellence in Indoor Athletics.

L. Webster Fox Prize (First)—Frank Hart Peters.

Mabel Lee Hyatt Prize (Second)—Clarence Grant Paige.

Greatest Improvement in Indoor Athletics.

John B. Roach Prize (First)—Robert Revere Horlacher.

William S. Blakeley Prize (Second)—Richard Victor Huebner.

Morris Trophy

(Inter-class Basketball)
Champion Team—Class 1916.
Israel Jacob Brodsky, Edward Joseph Kennedy,
Edmund Cramp, Abraham Leon Sickles,
William Kenneth Waterall.

John G. Bergfels Cavalry Medal

Robert Anewalt Young.

Trexler Marksmanship Trophy

William Kenneth Waterall.

Oliver Revolver Medal

William Kenneth Waterall.

The College Tennis Prizes

Doubles—Jerome Apt,
DeBruceton Lowenberg,
Singles—David H. Lane Powers.

War Department Record

Cadet Captain—Knapp Milburn,
Cadet Lieutenant—Keith Baldwin Hubbard,
Cadet Captain—Frank Hart Peters.

Loveland Cup

(Rifle Contest.)
Winning Team—Cadets.

Alumni Team

Major John W. Loveland, '87, Major Frederic N. Whitley, '01,
Mr. William J. Simpson, '87, Mr. John W. Loveland, Jr., '09.

Cadet Team

Cadet Captain—Frank Hart Peters,
Cadet Corporal—Harold Vernon Carson,
Cadet Corporal—William Kenneth Waterall,
Cadet Corporal—Lucius Lisk Moore.

Shirley Cup

(Revolver Contest.)
Winning Team—Cadets.

Alumni Team

Major John W. Loveland, '87, Mr. John W. Loveland, Jr., '09,
Mr. William J. Simpson, '87, Captain Howell H. Thomas.

Cadet Team

Cadet Captain—Knapp Milburn,
Cadet Sergeant—Alexander Carson Simpson,
Cadet Corporal William Kenneth Waterall,
Cadet Corporal—Lucius Lisk Moore.

ALUMNI ASSOCIATION MARKSMANSHIP MEDALS

Sharpshooters' Bars

Lucius Lisk Moore.

William Kenneth Waterall.

Year Bars

Julius Arnowitz,
Harold Vernon Carson,
James Calvin Hobart. Jr.,
Edward Joseph Kennedy,
Knapp Milburn,
Clarence Grant Paige,
Frank Hart Peters,
Raymond Eugene Stone,

Medals

Edmund Cramp,
Donald FitzGerald,
DeBruceton Lowenberg,
Felix Bath Wadel,
Howard John Winneberger.

Record of Medals Conferred

Alumni Association Scholarship Medal

Herbert Joseph Wild, 1894,
Robert Chesbrough Rathbone, 2d, 1895,
John Springstead Bull, 1896,
James Stuart Arnold, 1897,
Frederick Jacob Schoellkopf, 1898,
John Ansley Bowers, 1899,
Hugo William Schoellkopf, 1900,
Charles Bean Amory, Jr., 1901,
Jerome Garfield Smith, 1902,
Frederick Haussmann Mosser, 1903,
John Robson Sweeney, 1904,
Robert Joseph Boltz, 1905,
John Fogel Weiler, Jr., 1906,
Frederic Mortimer Lewis, 1907,
Gordon Meldrum Bettles, 1908,
Leslie Starr Hyatt, 1909,
Joseph Templeton Melchor Breneman, 1910,
Walter Harrah Hayden, 1911,
Ernest Gans Wadel, 1912,
Arthur Henry Strauss, 1913.
Alexander Carson Simpson, 1914.

Theodore Hyatt Scholarship Medal

John Springstead Bull, 1895,
James Stuart Arnold, 1896,
Frederick Jacob Schoellkopf, 1897,
George Alvin Kerr, 1898,
William Halleck Coffin, 1899,
Edwin Joseph Campbell, 1900,
Edgar Olcott Van Houten, Jr., 1901,
Frank Clinton Bowers, 1902,
John Robson Sweeney, 1903,
Isaac H. Johnson, 1904,
John Guy Britton, 1906,
Leslie Starr Hyatt, 1908,
Frank Roberts Thomas, 1910,
Thomas Dewees Finley, 1911,
Israel Jacob Brodsky, 1913.

John G. Bergfels Cavalry Medal

Arthur Brooks Newton, 1897,
Curran Booth Mendel, 1898,
Tryon Pierrepont Edwards, 1899,
Addison Kemp Foard, 1900,
Harry Derrett Mendel, 1901,
Samuel George Mendel, 1902,
Ira King Watkins, 1903,
Robert Keck Mosser, 1904,
James Henry, Jr., 1905,
Gardner Morse Macartney, 1906,
George Lyle Lutton, 1907,
Leslie Starr Hyatt, 1908,
James Henry Morley, 1909,
Thomas Ross Thompson, 1910,
Logan Campbell, 1911,
Walter Harrah Hayden, 1912,
Frederic de Lannoy Comfort, 1913,
Robert Gillespie Mead, 1914.
Robert Anawalt Young, 1915.

Shanley Trophy

George William Johnston, 1905,
Warwick Cristy O'Neal, 1906,
George Lyle Lutton, 1907,
Frederic Mortimer Lewis, 1908,
Eustis Lloyd Hubbard, 1909,
Alfred Gale Thomason, 1910,
Jesse Fletcher, Jr., 1911.

Trexler Trophy

Andrew Simpson Hubbard, 1912,
Ellis Edward Haring, 1913,
Lucius Lisk Moore, 1914.
William Kenneth Waterall, 1915.

Oliver Revolver Medal

George Lyle Lutton, 1907,
Frederic Mortimer Lewis, 1908,
William Niles Flanders, 1909,
James Woodruff Lillie, Jr., 1910,
Alfred Gale Thomason, 1911,
Andrew Simpson Hubbard, 1912,
Walter Harrah Hayden, 1913,
John Wilson Stoever, 1914.
William Kenneth Waterall, 1915.

Students in 1914-15

FIRST CLASS

Keith B. Hubbard	Eng.	Catskill, N. Y.
F. Cavarre Lloyd	Eng.	Denver, Colo.
F. Farwell Long	Chem.	Baltimore, Md.
Knapp Milburn	Eng.	Chattanooga, Tenn.
Frank H. Peters	Eng.	New York City.
D. H. Lane Powers	Eng.	Philadelphia, Pa.
Raymond E. Stone	Chem.	Morris, Pa.
Arthur H. Strauss	Eng.	New York City.
Robert A. Young	Eng.	Allentown, Pa.

SECOND CLASS

Jerome Apt	Chem.	Philadelphia, Pa.
Julius Arnowitz	Chem.	Braddock, Pa.
I. Jacob Brodsky	Chem.	Philadelphia, Pa.
Morris H. Buck	Chem.	New Haven, Conn.
Paul H. Camp	Chem.	Winchester, Pa.
Doyle Campbell	Eng.	El Paso, Texas.
Harold V. Carson	Eng.	Philadelphia, Pa.
Frederic deL. Comfort	Eng.	Chester, Pa.
Edmund Cramp	Eng.	Chester, Pa.
Frank M. English, Jr.	Eng.	Lawton, Okla.
Ernest C. Heller	Eng.	Cleveland, Ohio.
James C. Hobart	Eng.	Cincinnati, Ohio.
James M. Huebner	Eng.	Allentown, Pa.
Charles P. Jones	Eng.	Montgomery, Ala.
Edward J. Kennedy	Eng.	Darby, Pa.
Ralph Marano	Eng.	Philadelphia, Pa.
Aaron R. Mosser	Eng.	Allentown, Pa.
Clarence G. Paige	Eng.	Pelham Manor, N.Y.
William L. Schulte	Eng.	Trenton, N. J.
A. Leon Sickles	Chem.	Philadelphia, Pa.
A. Carson Simpson	Chem.	Philadelphia, Pa.
Harry A. Smith	Eng.	Mt. Carmel, Pa.
W. Kenneth Waterall	Chem.	Chemistry, Pa.

THIRD CLASS

Selection of course of study made at close of Third Class year.

Albert E. Ardussi.....Detroit, Mich.
John H. Christensen.....Syracuse, N. Y.
Donald FitzGerald.....Washington, D. C.
John D. Frisbee.....Connellsville, Pa.
Arthur F. J. Holben.....Schnecksville, Pa.
Charles R. Hoyt.....Philadelphia, Pa.
Thomas E. Leet.....Philadelphia, Pa.
DeBruceton Lowenberg .....Norfolk, Va.
John G. Monrose.....Philadelphia, Pa.
Lucius L. Moore.....Denver, Colo.
Walter H. Roll, Jr.....Linden, N. J.
Robert Ruppin .....Akron, Pa.
William C. Seaton .....Allentown, Pa.
Felix B. Wadel .....Tyler, Texas.
Howard J. Winneberger.....Philadelphia, Pa.
Oscar T. Winneberger.....Philadelphia, Pa.
Stanley Whitaker.....Philadelphia, Pa.
Martin F. Wilcoxon.....Catskill, N. Y.
C. Rudolph Williamson.....Media, Pa.

FOURTH CLASS

Charles J. Ardussi .....Detroit, Mich.
Bernard K. Bash .....Reading, Pa.
Joseph K. Dewar.....Pittsburgh, Pa.
Harry C. Eagle .....Philadelphia, Pa.
Robert R. Horlacher.....Allentown, Pa.
Richard V. Huebner.....Allentown, Pa.
Philip Jacobs .....Philadelphia, Pa.
Evan M. Johnson, 4th.....Washington, D. C.
John F. Kell, Jr.....York, Pa.
Allan Robert McGaw.....Winnipeg, Can.
George R. Mosser.....Allentown, Pa.
Eugene M. Perry.....Scottdale, Pa.
Joseph I. Reber.....Winfield, Pa.
George R. Roth.....Allentown, Pa.
Alfred Schneebeli .....Lancaster, Pa.
Charles S. Seger .....Ligonier, Pa.

Samuel Seltzer	Philadelphia, Pa.
William R. Simpson	Roselle, N. J.
Reading M. Smith	Cherry Valley, Mass.
Alexander W. Urling	Pittsburgh, Pa.

PREPARATORY CLASS

Walter S. Bastian	Allentown, Pa.
Donald G. Cameron	St. Catharines, Can.
Philip D. Dudley	Haverhill, Mass.
Manolo Gomez	Havana, Cuba.
Arthur Haber	Philadelphia, Pa.
Gordon M. Landis	Vineland, Pa.
Robert K. Landis	Vineland, Pa.
Herbert Peet	Philadelphia, Pa.
James E. R. Sadleir	Philadelphia, Pa.
William H. Schwalbe	Philadelphia, Pa.
Benjamin M. Stradley	Wilmington, Del.
John J. Wolfe	Cooper Tract, Pa.